

Code: 19CE3402

II B.Tech - II Semester – Regular Examinations – AUGUST 2021

**ENVIRONMENTAL ENGINEERING
(CIVIL ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

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- Note: 1. This question paper contains two Parts A and B.
2. Part-A contains 5 short answer questions. Each Question carries 2 Marks.
3. Part-B contains 5 essay questions with an internal choice from each unit. Each question carries 12 marks.
4. All parts of Question paper must be answered in one place
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PART – A

1. a) What are the different drinking water quality tests carried out in laboratory?
- b) Explain Chlorine Demand.
- c) Write short notes on metering in water distribution systems.
- d) State the factors affecting sludge digestion.
- e) What is the use of Soak Pit?

PART – B

UNIT – I

2. a) Explain in detail about the population forecasting 6 M methods.
- b) Enumerate the various surface source of Water and 6 M discuss and compare the quality and quantity of Water supplies that may be available from these sources.

OR

3. a) What is a River Intake? What are the factors which govern the location of an intake structure? 6 M
- b) Explain the various impurities present in Water. What are the permissible limits for these impurities as per Indian Standards (IS 2012)? 6 M

UNIT – II

4. a) Explain in detail about principle of working of rapid sand filters with a neat diagram. 6 M
- b) Describe the various constituents of a coagulation sedimentation plant with a neat sketch. 6 M

OR

5. a) What is meant by “Disinfection” in treating public water supply? What are the chemicals which are used as disinfectants and what are their merits and demerits? 6 M
- b) Enumerate the chemicals which are used for coagulation. How will you determine the optimum coagulant dosage by jar test? 6 M

UNIT-III

6. a) Illustrate with neat sketches the different types of layouts of pipe systems in distributing water and compare their merits and demerits. 6 M
- b) Discuss different types of water distribution systems along with their advantages and disadvantages. 6 M

OR

7. a) Explain Equivalent Pipe method used for pipe network analysis in water distribution system. 6 M

- b) Distinguish between Sluice Valve and Pressure Relief Valve with neat sketches. 6 M

UNIT – IV

8. a) Draw the cross section of Trickling filter and compare low rate and high rate filters. 6 M
- b) Explain cycles of decay of waste organic substances under aerobic oxidation. 6 M

OR

9. a) What do you understand by the B.O.D. of sewage? 6 M
- b) The BOD of a sewage incubated for one day at 30°C has been found to be 110mg/l. What will be the 5 day 20°C BOD? Assume $K_1 = 0.1$ at 20°C. 6 M

UNIT – V

10. a) Mention the various methods of disposal of effluent from septic tank. Describe one of them in detail. 6 M
- b) Mention merits and demerits of Imhoff tank. 6 M

OR

11. a) Design a septic tank for 200 users. Water allowance is 120 litres per head per day. Detention period may be taken as 8 hours. 6 M
- b) Name and explain with sketches, the different types of traps used in house sewer connections. 6 M